

[WHAT IS CLAIMED IS]

1. A semiconductor device comprising:

a first wiring and a second wiring formed of a first conductive film on an insulating surface;

5 a first semiconductor film of one conductivity type formed on the first and second wirings so as to correspond thereto;

a second semiconductor film formed on an upper layer of the first semiconductor film across the first wiring and the second wiring;

an insulating film formed on the second semiconductor film; and

10 a third conductive film formed on the insulating film.

2. A semiconductor device comprising:

a first wiring and a second wiring formed of a first conductive film on an insulating surface;

15 a second conductive film formed on the first and second wirings so as to correspond thereto;

a first semiconductor film of one conductivity type formed on the second conductive film;

a second semiconductor film formed on an upper layer of the first semiconductor film across the first wiring and the second wiring;

20 an insulating film formed on the second semiconductor film; and

a third conductive film formed on the insulating film,

wherein an end portion of the second semiconductor film is provided inside an end portion of the second conductive film.

3. A semiconductor device comprising:

a data wiring and a pixel electrode formed on an insulating surface;

a first semiconductor film of one conductivity type formed so as to correspond to the data wiring and the pixel electrode;

5 a second semiconductor film formed on an upper layer of the first semiconductor film across the data wiring and the pixel electrode;

a gate insulating film formed on the second semiconductor film; and

a gate electrode formed on the gate insulating film.

4. A semiconductor device comprising:

10 a data wiring and a pixel electrode formed on an insulating surface;

barrier metal formed so as to correspond to the data wiring and the pixel electrode;

a first semiconductor film of one conductivity type formed on the barrier metal;

15 a second semiconductor film formed on an upper layer of the first semiconductor film across the data wiring and the pixel electrode;

a gate insulating film formed on the second semiconductor film; and

a gate electrode formed on the gate insulating film,

20 wherein an end portion of the second semiconductor film is provided inside an end portion of the barrier metal.

5. A semiconductor device according to claim 1, wherein each of the first wiring and the second wiring comprises aluminum.

6. A semiconductor device according to claim 3, wherein each of the data wiring and the pixel electrode comprises aluminum.

7. A semiconductor device according to claim 1, wherein each of the first wiring and the second wiring comprises a conductive oxide film.

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8. A semiconductor device according to claim 3, wherein each of the data wiring and the pixel electrode comprises a conductive oxide film.

9. A semiconductor device according to claim 1, wherein the third conductive film comprises at least one element selected from the group consisting of Ta, Ti, and  
10 W or an alloy containing the element.

10. A semiconductor device according to claim 3, wherein the gate electrode comprises at least one element selected from the group consisting of Ta, Ti, and W, or an alloy containing the element.

11. A semiconductor device according to claim 1, wherein the semiconductor device is one selected from the group consisting of a mobile phone, a video camera, a portable information terminal, a liquid crystal TV receiver, a portable book, a personal computer, a DVD player, and a digital still camera.  
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12. A method of manufacturing a semiconductor device, characterized by  
20 comprising the steps of:

forming a first mask by a first light exposure process, using a first

photomask;

etching a first semiconductor film of one conductivity type, a second conductive film, and a first conductive film by first etching processing, using the first mask;

5 forming a second mask by a second light exposure process, using a second photomask;

etching a third conductive film by second etching processing, using the second mask; and

10 etching an insulating film, a second semiconductor film, the first semiconductor film, and the second conductive film by third etching processing after the second etching processing.

13. A method of manufacturing a semiconductor device, comprising the steps of:

15 forming a first conductive film on an insulating surface;  
forming a second conductive film on the first conductive film;  
forming a first semiconductor film of one conductivity type on the second conductive film;

forming a first mask by a first light exposure process, using a first photomask;

20 first etching of etching the first semiconductor film of one conductivity type, the second conductive film, and the first conductive film by first etching processing, using the first mask;

forming a second semiconductor film after the first etching step;

forming an insulating film on the second semiconductor film;

forming a third conductive film on the insulating film;  
forming a second mask by a second light exposure process, using a second photomask;

second etching of etching the third conductive film by second etching  
5 processing, using the second mask; and

third etching of etching the insulating film, the second semiconductor film, the first semiconductor film, and the second conductive film by third etching processing after the second etching step.

14. A method of manufacturing a semiconductor device according to claim 12,  
10 wherein the first conductive film comprises a material containing aluminum as its main constituent.

15. A method of manufacturing a semiconductor device according to claim 12, wherein the first conductive film comprises a conductive oxide film material.

16. A method of manufacturing a semiconductor device according to claim 12,  
15 wherein the third conductive film comprises at least one element selected from the group consisting of Ta, Ti, and W, or an alloy containing the element.

17. A method of manufacturing a semiconductor device according to claim 12, wherein the semiconductor device is one selected from the group consisting of a mobile phone, a video camera, a portable information terminal, a liquid crystal TV  
20 receiver, a portable book, a personal computer, a DVD player, and a digital still camera.

18. A method of manufacturing a semiconductor device according to claim 13,  
wherein the first conductive film comprises a conductive oxide film material.

19. A method of manufacturing a semiconductor device according to claim 13,  
wherein the third conductive film comprises at least one element selected from the  
5 group consisting of Ta, Ti, and W, or an alloy containing the element.

20. A method of manufacturing a semiconductor device according to claim 13,  
wherein the semiconductor device is one selected from the group consisting of a  
mobile phone, a video camera, a portable information terminal, a liquid crystal TV  
receiver, a portable book, a personal computer, a DVD player, and a digital still  
10 camera.

21. A semiconductor device according to claim 2, wherein each of the first  
wiring and the second wiring comprises aluminum.

22. A semiconductor device according to claim 2, wherein each of the first  
wiring and the second wiring comprises a conductive oxide film.

23. A semiconductor device according to claim 2, wherein the third  
conductive film comprises at least one element selected from the group consisting  
of Ta, Ti, and W or an alloy containing the element.  
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24. A semiconductor device according to claim 2, wherein the semiconductor  
device is one selected from the group consisting of a mobile phone, a video camera,

a portable information terminal, a liquid crystal TV receiver, a portable book, a personal computer, a DVD player, and a digital still camera.

25. A semiconductor device according to claim 3, wherein the semiconductor device is one selected from the group consisting of a mobile phone, a video camera,  
5 a portable information terminal, a liquid crystal TV receiver, a portable book, a personal computer, a DVD player, and a digital still camera.

26. A semiconductor device according to claim 4, wherein each of the data wiring and the pixel electrode comprises aluminum.

27. A semiconductor device according to claim 4, wherein each of the data  
10 wiring and the pixel electrode comprises a conductive oxide film.

28. A semiconductor device according to claim 4, wherein the gate electrode comprises at least one element selected from the group consisting of Ta, Ti, and W, or an alloy containing the element.

29. A semiconductor device according to claim 4, wherein the semiconductor  
15 device is one selected from the group consisting of a mobile phone, a video camera, a portable information terminal, a liquid crystal TV receiver, a portable book, a personal computer, a DVD player, and a digital still camera.